

“DOCUMENTATION OF TRADITIONAL HERBAL MEDICINES FOR REPRODUCTIVE DISORDERS OF LIVESTOCK IN KAMRUP DISTRICT OF ASSAM”

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ABSTRACT

The present study deals with the indigenous traditional knowledge (ITK) of local communities on medicinal plants used for curing various reproductive disorders that adversely affect the reproductive efficiency of the livestock. The management options available for the treatment of such reproductive disorders include the use of drugs and a variety of surgical procedures. Many medicinal plants have been claimed to be effective in modulating reproduction but the systematic scientific evidence regarding their mechanism of action, dosage or clinical efficacy is lacking. Incorporation of cheap, efficacious and scientifically proven indigenous plant based medicines is the need of the hour along with establishment of their safety needs. In the present study, 26 plant species were found to be used as medicines in treatment of various reproductive disorders of livestock.

KEYWORDS: *Herbal Medicines, Reproductive Disorders, Livestock, Kamrup District, Assam*

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INTRODUCTION

Fertility is one of the key determinants in the life time performance of any animal. Reproductive disorders adversely affect the reproductive efficiency. Infertility in dairy animals causes tremendous economic losses to the farmers and to the nation by decreasing milk yield, the number of calves produced and by increasing culling rate (Perumal et al. 2013). The reproductive disorders may be congenital or acquired. Infertility, anoestrus, retention of placenta, prolapsed of genital organs have been observed as the most common reproductive disorders in livestock of Kamrup district of Assam. The management options available for the treatment of reproductive disorders include the use of drugs and a variety of surgical procedures. So in this context, the traditional knowledge of local healers who possess knowledge and experience in traditional systems of treatment is important, but their knowledge regarding the treatment practices have not documented and is vanishing very rapidly (Romha et al. 2015). Many medicinal plants have been claimed to be effective in modulating reproduction but the systematic scientific evidence regarding their mechanism of action, dosage or clinical efficacy is lacking. Incorporation of cheap, efficacious and scientifically proven indigenous plant based medicines is the need of the hour along with establishment of their safety needs. In the present study the emphasis has been laid on the fact that naturally available plants and their parts can be of great use to overcome reproductive disorders of livestock. In

North East India including Assam, plants and herbs has been on the use since long back from ancient times for enhancing fertility by minimizing the reproductive disorders. Kamrup district of Assam comprises two sub- divisions namely, Guwahati and Rangia. Below this level, there are 8 Revenue Circles under Guwahati sub-division and 3 Revenue Circles under Rangia subdivision. Furthermore, from developmental angle, the district is divided into 15 Development Blocks. Below the block level set-up, there are 162 Gaon Panchayats, each comprising of a number of villages and governed by local-self bodies. The population is comprised of several ethnic groups namely, Koch- Rajbanshi, Bodos, Rabhas, Kocharis etc. These people have tremendous knowledge of ethno medicine inherited from their forefathers. Kamrup district is extended between 25°46'' and 26°49'' North latitude and between 90°48'' and 91°50'' East longitude and its approximate altitude is 55m above MSL. The temperature ranges from 7° – 38.5° C, average rainfall is 1500 - 2600 mm per year and the relative humidity is 76.6%. The geographical area of the district is 4,34,500 ha.

METHODOLOGY

The present work is the outcome of extensive survey of different villages of Kamrup district of Assam undertaken during 2014-15 to collect information on the traditional uses of medicinal and economic plants of the district. The random survey was mainly based on interview and observations followed by discussions with practitioners and knowledgeable persons. The plant specimen were collected and then identified in the Department of Pharmacology and Toxicology, College of Veterinary Science, AAU, Khanapara, Assam¹. The ethno botanical data were recorded according to standard procedure².

RESULTS AND DISCUSSIONS

Plants used for the treatment of livestock to overcome reproductive disorders are placed below with their botanical name followed by family name, local name and methods of application of medicines against various reproductive disorders.

ANOESTRUS

Failure of estrus or anestrus, in cattle is the principal symptom of many conditions that may affect the estrous cycle. It is the most common single cause for infertility in cattle. Anestrus in cattle is observed most commonly either after parturition as postpartum or preservice anestrus or following service as postservice anestrus, when conception does not occur. In heifer, it is frequently observed as a herd problem especially during periods of lowered nutritive intake. The herbal remedial measure practiced by the villagers includes grinding the plants *Tinospora cordifolia* locally known as Saguni lota, along with the bark of *Cassia fistula* L. locally known as Sonaru and leaves of *Artocarpus heterophyllus* L. locally known as kothal and fed to the animal orally for a period of 3-4 days.

RETENTION OF PLACENTA

Retained placenta is an important post partum complication. The placenta may be retained because of lack of expulsive forces or failure of separation of fetal cotyledons and maternal caruncles. If placenta is retained after the birth of young one, animal stops feeding and shows abnormal behavior due to pain. For easy expulsion of placenta naturally after birth farmers used some locally available medicinal plants and their parts. The herbal remedies helped in uterine contractibility and had antimicrobial properties. Some of the remedial measure practiced by the farmers during retention of placenta along with the local herbs used has been documented below.

- One to two kg boiled rice (*Oryza sativa* Linn.), locally known as Bhat with fruits of *Carica papaya* locally known as Omita is fed to the animal.
- The leaves of *Ocimum sanctum*, locally known as Tulashi is fed twice a day to clean the uterus and to expel placenta of the animal.
- The whole plant of *Calotropis procera*, locally known as akon, is fed to the animal.
- The bark part of *Cinnamomum camphora*, locally known as Tejpat, is fed to the animal.
- The leaves of *Clerodendrum multiflorum*, locally known as Goophul is fed to the animal.
- The fruits of *Cucumis callosus*, locally known as Tiyanh, is fed to the animal.
- The crushed leaves of *Bambusa bambos* locally known as Bah applied to the vagina of the animal to expel the placenta.
- The crushed leaves of *Camellia sinensis* locally known as chahpat with luke worm water fed to the animal.
- The flower of *Solanum melongena* locally known as Bengena with leaves of *Musa paradisiaca* locally known as kol pat fed to the animal.
- About 100gm leaf juice of *Oxalis corniculata* L. locally known as chekat tenga is mixed with little common salt and administered with the help of bapor chungu (bamboo glass).

PROLAPSE OF GENITAL ORGANS

Prolapse of genital organs is an emergency condition which adversely affects overall performance of the affected animal. It should be treated before excessive edema, traumatic lacerations fatal hemorrhage and bacterial contamination lead to unfavorable prognosis³. Vaginal prolapse has been registered in delivered buffaloes, cows and sheep and usually observed in the last months of pregnancy⁴. Some of the remedial measure with herbs has been documented below.

- Seed oil of *Brassica napus* L. locally known as Sarihar tel and leaves of *Mimosa pudica* L. locally known as lajuki lata are crushed together in equal amount and put on palm and the protruded portion gently pushed inside with palm.
- Two hands-full of whole plant of *Centella asiatica* L. locally known as manimuni is boiled in two litres of water till volume becomes half and then filtered it with the help of a muslin cloth. The liquid is administered twice a day preferably at early morning and late evening with the help of bapor chungu (bamboo glass) for one week.
- About 200gm root of *Ziziphus mauritiana* L. locally known as bagori and 200 gm root of *Chrysopogon zizanioides* L. locally known as citranala are mixed and decocted with three litres of water till volume becomes one third and is filtered with a muslin cloth and thereafter is stored in a bottle. 100 ml of mixture is given twice a day for 7-10 days to cattle along with feed.
- Little amount of washing powder is taken on leaf of *Musa sapientum* L. locally known as kol and the umbilical cord is slowly pushed inside with it.

REGULATE REPRODUCTIVE CYCLE

Estrous cycles consist of a series of predictable reproductive events at estrus (heat) and ending the subsequent estrus. They continue throughout the adult female's life and are interrupted by pregnancy, nursing and by season of the year in some species. Cyclicity may also cease if nutrition is inadequate or environmental conditions are unusually stressful. For that, the farmers used some herbal preparation and gave it along with daily ration to their animals.

- About 500 gm cooked Masoor (*Lens culinaris* subsp. *culinaris* syn. *Lens esculenta*) is fed to cattle for 15 days.
- The green leaves of *Phyllanthus niruri* locally known as Tetali fed to the animals for one week.
- The fruit of *Mimusops elonga* locally known as Bakul fed to the animals for one week.

INFERTILITY

Infertility is the diminished capacity to produce viable offspring. Insufficient feed and fodder resources to fulfill the nutritional requirements of dairy animals are a very important cause for poor reproductive efficiency. In conditions when sufficient nutrients, particularly energy source are not available to the lactating cows and buffaloes a loss in body condition results causing decrease in milk production and reproductive activity is compromised. In pregnant cows the end result is under weight calves and open period postpartum is prolonged. Fertility of the cows declines when they go into breeding season in poor condition. There are various infectious and non-infectious causes of infertility. Out of that nutrition and stress are the major causes. Some of the remedial measures practiced by the farmers have been documented below

- *Citrus aurantifolia* locally known as Kaji nemu is grinded at first and then fed to the animal along with Kala nimakh (black salt) for a month.
- The green leaves and bark of *Saccharum officinarum* L. locally known as Kuhiyar pat is fed to the animal for one week.
- A leaf of Pat-kunwar (*Aloe barbadensis* Wall.) is tied externally on the navel portion of the animal.

The present study deals with naturally available plants and their parts which can be of great use to overcome reproductive disorders of livestock. Information was collected from among Assamese, Rabha and Bodo communities of Kamrup district of Assam. Generally, medicinal plant parts are collected by the males and prepared by the females. In the present study, 26 plant species were found to be used as medicines for treatment of various diseases. The diseases were treated either with a single plant or combination of more than one plant. Leaves, bark, fruit, stem, root etc were used for preparation of medicines. The commonly used methods for preparation of plants and other materials to be used were, boiling, grinding, crushing, mixing and then feeding orally or along with the feed provided to the animals. In some instances common salt, black salt were also added along with the herbal preparation. No specific procedure for preparation and administration of traditional medicines existed in the study area which needs to be standardized for better efficacy of these preparations. The study also indicated variations regarding traditional knowledge and use of plant parts among the different communities. Similar findings were also reported by Chah et al. (2009). The farmers resorted to indigenous practices to get rid of the different reproductive disorders by themselves at first followed by fellow farmers having better knowledge than them. Similar findings were also reported by Das et al. (2009) and Yadav et al. (2015). Most of the farmers using the herbs to treat their animals acquired this knowledge from their forefathers. The communities included in the study area were traditionally rural in nature and hence the farmers were quite rich in terms of knowledge regarding use of

indigenous therapies for health care of their livestock. Moreover due to unavailability or lack of accessibility to veterinary services in the rural areas the farmers had to depend upon the traditional practices for treating their animals. Similar findings were also reported by Yirga et al. (2012) and Pragada et al. (2012). Although, traditional remedies are being used in the rural areas in Assam but the process of modernizing this traditional knowledge is declining day by day. Detailed pharmacological and chemical investigation of these herbal plants and traditional formulations will be of great help in the making of new veterinary drugs in the coming future.

CONCLUSIONS

The state of Assam has rich biodiversity of medicinal plants and indigenous tribal people possess traditional knowledge on herbal medicines. Many medicinal plants have been reported to be effective in various reproductive disorders, but only few were studied systematically for their effect on reproductive disorders in farm animals. Although the traditional use of some plants has been tried and tested, the effectiveness of most plants has not yet been demonstrated. The data about the usage of medicinal plants to treat the ailments in animals mentioned in the present study is a preliminary and first report. The medicinal formulas explained by the traditional healers are not yet ascertained. Documentation of the traditional remedies will therefore form a basis for further validation of the efficacy, mode of action and safety of traditional remedies used in treatment of various reproductive disorders in animals. So at present the validation of traditional remedies for the treatment of other diseases is the need of the hour to have better understanding for the promotion of their use on scientific basis and to provide health care to our vast livestock population in an eco friendly way.

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APPENDICES



Figure 1



Figure 2



Figure 3

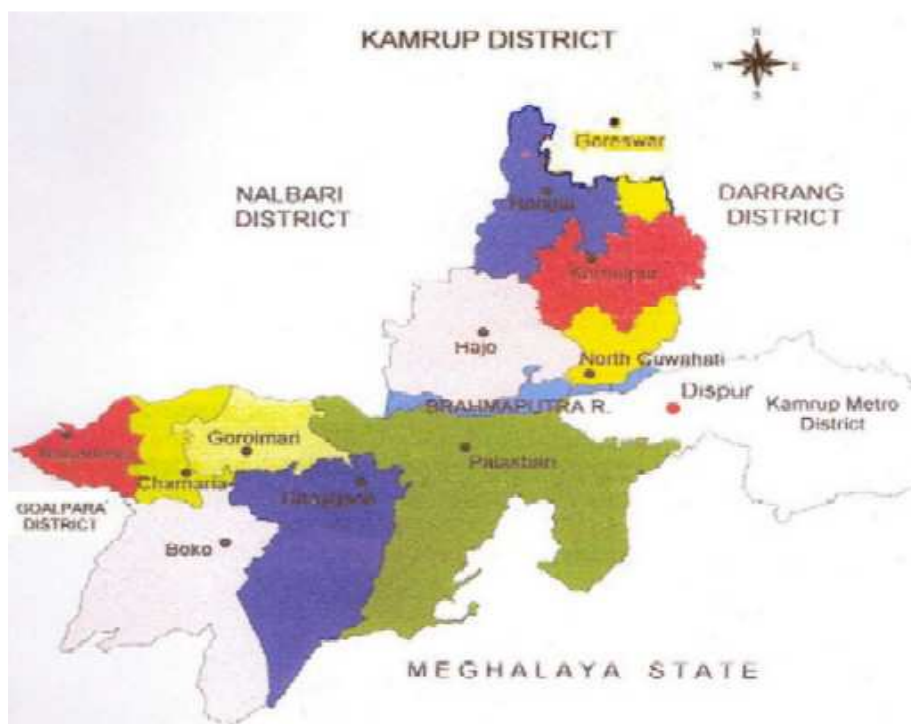


Figure 4: Map of Kamrup District (Source: Google)

